

REMARKS

I. Introduction

Claims 7 to 13, 15 to 17, and 19 to 24 are currently pending in the present application. In view of the foregoing amendments and following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants thank the Examiner for considering the Information Disclosure Statement of September 15, 2010 and cited references.

II. Objection to Claim 24

Claim 24 has been amended herein without prejudice, thereby rendering moot the objection thereto. Withdrawal of the objection to claim 24 is therefore respectfully requested.

III. Rejection of Claims 23 and 24 Under 35 U.S.C. § 112

Claims 23 and 24 were rejected under 35 U.S.C. § 112, ¶ 1, as assertedly failing to satisfy the written description requirement. Specifically, the Office Action questions whether there is support for the features of “an instruction of the program is executed using a plurality of the configurations” and “a plurality of instructions of the program are executable via a single instance of the respective configuration.”

The present application, at par. 37 of the application publication no. 2006/0090062, incorporates by reference internal docket number PACT11, which includes U.S. Pat. App. Ser. No. 09/967,847 (issued as U.S. Pat. No. 7,210,129), which claims priority to German Pat. App. No. DE 101 39 170, which is itself separately referred to and incorporated by reference at par. 3 of the application publication. (See also U.S. Pat. App. Pub. No. 2009/0006895, which explicitly states that PACT11 includes U.S. Pat. App. Ser. No. 09/967,847.)

Support for the above-noted features of claims 23 and 24, respectively, may be found, for example, in U.S. Pat. No. 7,210,129 at 3:16-19, 3:33-35, 4:23-25, 6:41-42, 7:51-58, and 11:1-6.

Withdrawal of the written description requirement of claims 23 and 24 is therefore respectfully requested.

IV. Rejection of Claims 7, 10, 11, 15 to 17, and 19 to 24 Under 35 U.S.C. § 103(a)

Claims 7, 10, 11, 15 to 17, and 19 to 24 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent No. 6,658,564 (“the Smith reference”), U.S. Patent No. 5,860,119 (“the Dockser reference”), and U.S. Patent No. 6,076,157 (“the Borkenhagen reference”). It is respectfully submitted that the combination of the Smith, Dockser, and Borkenhagen references does not render unpatentable any of claims 7, 10, 11, 15 to 17, and 19 to 22, and the rejection should be withdrawn, for at least the following reasons.

Claim 7 relates to a method of data processing using a processor including a reconfigurable field of data processing cells and a register, and recites “determining, for the reconfigurable field of data processing cells, a set of configurations of the reconfigurable field of data processing cells, with respect to at least one of a function and an interconnection of the reconfigurable field of data processing cells, with execution of which configurations the program is run; determining, for each of the configurations, a respective maximum allowed execution runtime prior to lapse of which the respective configuration is uninterruptible, and in response to lapse of which the reconfigurable field of data processing cells is reconfigured with a different configuration.”

The Borkenhagen reference has nothing to do with configurations, and instead refers to a forced thread switch for a thread after some time. Thus, at most, the Borkenhagen reference refers to a maximum runtime for a thread; not for a configuration. Indeed, the Office Action refers to the Smith reference as assertedly disclosing a configuration, besides for threads. However, the mere mentioning in the Smith reference of a configuration and of a thread in no way suggests applying a maximum runtime to a configuration as with a thread in the Borkenhagen reference. Indeed, threads are parts of a program that can be executed independently of each other, for example, in parallel, whereas configurations are of the function and/or interconnection of reconfigurable processing cells, which can then be used in their configurations for executing one or more parts of a program. Thus, there is no one-to-one correspondence of a thread to a configuration, and the reference to a forced thread switch after some time in the Borkenhagen reference in no way suggests a forced configuration switch after some time.

Moreover, the Smith reference does not suggest to apply the switching mechanism of the Borkenhagen reference to configurations. The Smith reference indicates that a function may be compiled into a software implementation and a hardware

implementation, which may be alternatively selectable by an operating system at execution time depending on prevailing system demands. In other words, the configuration in the Smith reference is a hardware implementation of what would otherwise be a software function, in its entirety, and is used instead of, and is the counterpart of, the software function.

At 8:66 - 9:4, the Smith reference merely suggests applying a time-multiplexing system to functions. Nowhere does the Smith reference suggest applying a time-multiplexing system to configurations. While the Smith reference may provide certain configurations of hardware that provide for operation in a manner that corresponds in its entirety to a function as a whole, the time-multiplexing is ultimately provided on a function-by-function basis, and not a configuration-by-configuration basis. For example, if a configuration is usable for multiple functions, then, while the time-multiplexing may provide for interrupting a particular function, the configuration may continue to be used without reconfiguration.

In the "Response to Arguments" section, the Office Action asserts that nothing in the present claims requires the configurations to be anything but ones that correspond in their entirety to a software function in its entirety. However, even if that was the case, the Smith reference still does not suggest applying time-multiplexing to a configuration. Instead, the time-multiplexing is applied to a function, which may incidentally also correspond to a configuration, where it so works out. Nevertheless, to facilitate matters, claim 7 has been amended herein without prejudice to explicitly recite that "at least one of: (a) a single function of the program is executed via sequential execution of a plurality of the set of configurations; and (b) for each of at least one of the set of configurations, a plurality of functions of the program are executed in sequence via execution of a single instance of the respective configuration." Support for the amendments to the claims may be found, for example, in incorporated U.S. Pat. No. 7,210,129 at 3:16-19, 3:33-35, 4:23-25, 6:41-42, 7:51-58, and 11:1-6. Thus, claim 7 explicitly refers to configurations that do not correspond, with a one-to-one relationship, to a software function. The cited references do not disclose or suggest determining, for each such configuration, a respective maximum allowed execution runtime, in response to lapse of which the reconfigurable field of data processing cells is reconfigured with a different configuration, as required by claim 7.

Thus, the combination of the Smith, Borkenhagen, and Dockser references does not disclose or suggest all of the features of claim 7, and therefore does not render

unpatentable claim 7 or any of its dependent claims, e.g., claims 10, 11, 15 to 17, and 19 to 22.

Claim 23 states that “an instruction of the program is executed using a plurality of the configurations.” Claim 13 has been amended herein without prejudice to further recite that “the reconfigurable field [is] reconfigured between the use of different ones of the plurality of configurations.” The Office Action refers to 13:28-29 of the Smith reference as assertedly disclosing using a plurality of configurations for execution of an instruction. The cited section refers to “a plurality of blocks of configuration data that makes up a given function,” where each block corresponds to the configuration of a respective hardware unit. See 10:14 et seq. The plurality of blocks does not disclose a plurality of configurations, where reconfiguration is performed between the use of different configurations.

Therefore, the combination of the Smith, Borkenhagen, and Dockser references does not disclose or suggest all of the features of claim 23, and therefore does not render unpatentable claim 23.

Claim 24 recites “a plurality of instructions of the program are executable via a single instance of the respective configuration.” The Office Action refers to 13:33-34 of the Smith reference as assertedly disclosing this feature. The cited section merely states that a single programmable logic resource may be allocated to a single block of configuration data that makes up a given function. This does not suggest that multiple instructions are executed using a single instance of a configuration.

Therefore, the combination of the Smith, Borkenhagen, and Dockser references does not disclose or suggest all of the features of claim 24, and therefore does not render unpatentable claim 24.

Withdrawal of this obviousness rejection of claims 7, 10, 11, 15 to 17, and 19 to 24 is therefore respectfully requested.

V. Rejection of Claims 8 and 9 Under 35 U.S.C. § 103(a)

Claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Smith, Dockser, and Borkenhagen references in further view of U.S. Patent No. 5,941,977 ("the Panwar reference"). It is respectfully submitted that the combination of Smith, Dockser, Borkenhagen, and Panwar references does not render unpatentable either of claims 8 and 9, and the rejection should be withdrawn, for at least the following reasons.

Claims 8 and 9 ultimately depend from claim 7 and are therefore allowable for at least the same reasons set forth above in support of the patentability of claim 7 since the Panwar reference does not cure the critical deficiencies noted above with respect to the combination of the Smith, Dockser, and Borkenhagen references.

Withdrawal of this obviousness rejection of claims 8 and 9 is therefore respectfully requested.

VI. Rejection of Claims 12 and 13 Under 35 U.S.C. § 103(a)

Claims 12 and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Smith, Dockser, and Borkenhagen references, in further view of U.S. Patent No. 4,041,462 ("the Davis reference"). It is respectfully submitted that the combination of the Smith, Dockser, Borkenhagen, and Davis references does not render unpatentable either of claims 12 and 13, and the present rejection should be withdrawn, for at least the following reasons.

Claims 12 and 13 ultimately depend from claim 7 and are therefore allowable for at least the same reasons set forth above in support of the patentability of claim 7 since the Davis reference does not cure the critical deficiencies noted above with respect to the combination of the Smith, Dockser, and Borkenhagen references.

Withdrawal of this obviousness rejection of claims 12 and 13 is therefore respectfully requested.

VII. Conclusion

In light of the foregoing, it is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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